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USIB-D-34.4/2
21 May 1962

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UNITED STATES INTELLIGENCE BOARD

MEMORANDUM FOR THE UNITED STATES INTELLIGENCE BOARD

SUBJECT : Scientific and Technical Intelligence - General (Recommendation No. 15 of the 4 October 1961 Report to the President by the President's Foreign Intelligence Advisory Board)

REFERENCE: USIB-D-34.4/1, 30 October 1961

1. Enclosed for Board review is a draft report by the Coordination Staff containing, pursuant to the requirement indicated in the reference, an assessment of and recommendations for USIB action on the problem of improving the collection, coordination and analysis of intelligence concerning the scientific and technical capabilities of the Soviet Bloc.

2. We presently plan to place this matter on the agenda of an early USIB meeting (probably that of 13 June), for discussion and approval of the Coordination Staff report and recommendations regarding the above problem, including the proposed memorandum response to Mr. McGeorge Bundy and the President's Board on the subject.

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[redacted]

Acting Executive Secretary

Attachments - 3

A - Memorandum for Chairman, USIB, from Assistant for Coordination/DCI
B - Proposed Memorandum for Special Assistant to the President for National Security Affairs and President's Foreign Intelligence Advisory Board
C - Assessment by Coordination Staff of Scientific and Technical Intelligence

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Attachment A
USIB-D-34.4/2
21 May 1962

Office of
THE DIRECTOR OF CENTRAL INTELLIGENCE
Washington 25, D. C.

MEMORANDUM FOR: Chairman, United States Intelligence Board

SUBJECT : Scientific and Technical Intelligence - General (Recommendation No. 15 of the 4 October 1961 Report to the President by the President's Foreign Intelligence Advisory Board)

REFERENCE : USIB-D-34.4/1 dated 30 October 1961

1. In accordance with the reference, the attached draft report containing an assessment and recommended actions on the problem of improving the collection, coordination and analysis of intelligence concerning the scientific and technical capabilities of the Soviet Bloc is submitted for consideration by the United States Intelligence Board (USIB) as a response to the subject recommendation. This report was originally prepared for submission in December, 1961, but was deferred at the request of the Director of Central Intelligence so that certain additional information could be examined and incorporated in the report.

2. As directed, the attached report has been prepared by the Coordination Staff of the Director of Central Intelligence in consultation with appropriate agencies and chairmen of USIB committees.

3. In preparing this report, members of the Coordination Staff have visited and held discussions with the Army Technical Intelligence Field Agency; the Navy's Scientific and Technical Intelligence Center; the Air Force Intelligence Center; the Directorate of Foreign Technology and the Foreign Technology Division, Air Force Systems Command; the Office of the Science Advisor and Office of the Special Assistant for Atomic Energy and Outer Space of the Department of State; the Defense Intelligence Agency; the National Security Agency; the Office of the General Counsel, Department of Defense; the Office of Scientific Intelligence, Office of Operations, Office of National Estimates, Office of the Deputy Director, Plans, and the National Photographic Interpretation Center, of the Central Intelligence Agency and the Naval Ordnance Test Station. In addition, the following non-governmental organizations and individuals were contacted: [redacted] 25X1
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In addition, the Coordination Staff has consulted numerous individuals in the intelligence community knowledgeable in this area of intelligence activity, including the Chairman of the Committee on Overhead Reconnaissance, the Guided Missile and Astronautics Intelligence Committee, the Scientific Intelligence Committee, and the Joint Atomic Energy Intelligence Committee.

4. It is recommended that the USIB approve the attached draft memorandum, with its accompanying assessment, to the Special Assistant to the President for National Security Affairs and to the President's Foreign Intelligence Advisory Board.

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Assistant for Coordination

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USIB-D-34.4/2
21 May 1962

D R A F T

MEMORANDUM FOR: The Special Assistant to the President for
National Security Affairs
The President's Foreign Intelligence
Advisory Board

SUBJECT : Scientific and Technical Intelligence - General
(Recommendation No. 15 of the 4 October 1961
Report to the President by the President's
Foreign Intelligence Advisory Board)

1. In accordance with Mr. Bundy's memorandum of 11 October 1961, subject as above, the United States Intelligence Board (USIB) submits herewith a report containing an assessment of and measures for improving the collection, coordination and analysis of intelligence concerning the scientific and technical capabilities of the Soviet Bloc.

2. The United States Intelligence Board has approved the following actions based upon this report:

(a) Efforts to develop a practical machine translation capability should be continued on an accelerated basis. (See Section 2)

(b) CIA should explore the feasibility of allocating additional funds to its present ~~program~~ service of common concern for coordinated exploitation of Soviet Bloc scientific and technical literature. (See Section 2)

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(d) The Defense Intelligence Agency and the Central Intelligence Agency should jointly review present procedures ~~for~~ governing the acquisition and exploitation of Soviet Bloc material, and submit recommendations for improvement to USIB. (See Section 4)

(e) CIA should develop and carry out a long-range program for the clandestine collection of scientific and technical information from the Soviet Bloc. (See Section 5)

(f) The Director, National Security Agency (NSA), should continue and expand, if feasible, the use of facilities outside the intelligence community which have been established for collection and analysis of U. S. missile and space telemetry for the collection and analysis of Soviet telemetry. (See Section 5)

(g) The Secretary of Defense should submit recommendations to USIB concerning the division of responsibility for telemetry analysis between NSA and the other departments and agencies in the intelligence community. (See Section 6)

(h) Plans for any new technical collection methods intended to meet national and interdepartmental intelligence needs should be submitted to the United States Intelligence Board by the originating agency in order that the Board may express its views as to the intelligence value of the proposed project. (See Section 7)

(i) The Secretary of Defense should establish procedures with the military services which will permit both further use of designated operational components in connection with specific technical collection systems and expeditious deployment of additional facilities when dictated by a particular Soviet Bloc activity. (See Section 7)

(j) CIA should re-examine its program and activities for the production of scientific and technical intelligence in the light of changes now taking place in the intelligence community, and in consultation with the Defense Intelligence Agency. (See Section 8)

(k) The Department of Defense should make arrangements for scientific and technical intelligence which will provide, under the staff supervision of the Defense Intelligence Agency, for the continuation and strengthening of programs designed to render support to and receive assistance from research and development components, and for the utilization of the resources and services of such programs in preparing contributions to intelligence estimates. (See Section 8)

(l) CIA should continue and strengthen its program of support to research and development components of the government outside the Department of Defense other than the Atomic Energy Commission. (See Section 8)

3. The Coordination Staff of the Director of Central Intelligence will continue to follow intelligence community activities concerning the scientific and technical capabilities of the Soviet Bloc.

Attachment

Attachment C
USIB-D-34.4/2
21 May 1962

ASSESSMENT OF SCIENTIFIC AND TECHNICAL INTELLIGENCE

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Assessment of Scientific and Technical Intelligence

1. General

The intelligence community at present is providing the policy and planning elements of the government with reasonably adequate intelligence on the overall basic scientific and technical capabilities of the Soviet Bloc. Although in the aggregate this intelligence is satisfactory, it is not completely comprehensive and on a few areas of basic science and technology, [redacted] 25X1

25X1 [redacted] intelligence coverage of Soviet Bloc activity is incomplete. Generally, however, such areas are those which have been deemed after careful consideration, to be of lesser importance or in which significant scientific and technical advances are least likely to occur in the immediate future. A significant body of information is available on a continuous basis from overt sources and other collection facilities relating to Soviet Bloc basic scientific and technical capabilities. Although certain steps are desirable to increase the receipt of such information, the most urgent problems relate to the translation and organization of this information so that it can be disseminated and made readily accessible to intelligence analysts and other users.

Intelligence on the application of Soviet Bloc basic scientific capabilities to the achievement of specific objectives and end products, however, is inadequate. This inadequacy is becoming more acute due to the world wide technological "explosion" and the concomitant increasing competence and sophistication of Soviet science and technology. The principal deficiency is the lack of hard, factual information on the

policy, planning, research and design phases in the development of a Soviet weapon, weapons system, or other technological achievement. Past experience indicates that factual information on these phases of Soviet activity is not likely to be available through overt sources, or susceptible to collection by technical methods. Although clandestine collection has not as yet produced significant information on these phases of Soviet activity, nevertheless it is apparent that the community will of necessity have to place urgent emphasis on clandestine collection means to fill this serious gap.

Several intelligence agencies have developed and are using with success a variety of technical methods which enable the community to detect and identify the end products of the Soviet effort early in their test stages and to ascertain, to some degree, their characteristics, production, and use. In the absence of significant information on the planning and design phases of Soviet Bloc development activity, the community relies increasingly on technical collection methods and devices to provide information on the applications which the Soviets have made of their capabilities. Despite the limitations of such reliance in terms of adequate advance warning of the direction and scope of Soviet efforts, it is clear that this situation will obtain for the immediate future. Even if significant progress can be made in the field of clandestine collection to meet this urgent requirement for planning and design information, it will be necessary to develop new technical methods for end product detection in order to keep pace with Soviet technological advances.

The analytical efforts of the intelligence community in scientific and technical intelligence serve two quite distinct kinds of customers. On the one hand are the policy makers and operational officials of the government, on the other hand, the research and development organizations and activities of the government. The needs of these two types of consumers are different (although not incompatible) and this fact raises some problems with respect to the organization and coordination of the analytical effort as a whole.

There are within all elements of the community a recognition of the importance of scientific and technical intelligence concerning the Soviet Bloc, and a desire to take every possible step to improve the United States capability to foresee and to profit by Soviet scientific and technical developments.

2. Exploitation of open literature

Several studies have been undertaken to determine whether Soviet scientific and technical trends and capabilities might be assessed, well in advance, from available open literature, if such literature were adequately exploited. Although these studies have not been conclusive, having the element of hindsight, it is possible to generalize that a vast amount of scientific and technical information does exist in unexploited literature. This information is of use and value to the U. S. scientific community at large, as well as to the intelligence community, and the problems involved in making it readily available are shared by both groups.

The first step in making the scientific and technical information contained in Soviet Bloc literature available is that of converting it, by translation (or by abstracts, which necessitate translation), into the English language. The current effort in thus exploiting such literature is almost entirely dependent upon human, manual translation to English text. Of the estimated 3.5 million pages of Soviet Bloc literature available, approximately one-half are believed to contain information of some scientific or technical intelligence value, and only 300,000 pages are being translated annually. It is generally recognized that unless a practical machine translation capability can be developed, there may be no practicable solution to this problem. Considerable progress has been made toward this end, although additional efforts and funds will be required before the adequate capability can be realized in practice. Therefore, efforts to develop such capability should be continued on an accelerated basis.

In the interim, however, greater use should be made of available human resources to accomplish translations. There are approximately [redacted] qualified translators, with scientific and technical competence, presently available under contractual arrangements with CIA as part of its service of common concern. Due to a limitation of funds, many of these translators are not now being fully utilized. CIA should explore the feasibility of allocating additional funds to permit full utilization, (on a carefully selective basis), of this translator resource. The allocation of an additional [redacted] for example, would more than double the amount of scientific and technical information currently being obtained from Soviet Bloc open literature. Both human and machine translation efforts must be accompanied by increased endeavors to improve the process of selecting that portion of the body of literature which does, in fact, contain useful information.

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The problem of processing and storing the mass of unclassified data obtained from open literature in a manner which will permit its speedy retrieval is a matter of concern to the scientific community as well as to the intelligence community. No mechanism entirely satisfactory to either group now exists. It is clearly desirable, however, that the intelligence community cooperate as fully as possible with scientific groups seeking to resolve this problem in order to avoid unnecessary duplication and take full advantage of non-intelligence activities and arrangements. It is noted that a comprehensive study has been approved by the United States Intelligence Board which, among other objectives, attacks some aspects of this problem.

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4. Exploitation of Materiel

A certain amount of Soviet Boc materiel (hardware) has been collected and exploited by the intelligence community to further the assessment of the scientific and technical capabilities of the Soviet Bloc. In some instances, however, there has been duplicative effort in acquiring the same types of equipment, although for some types of materiel duplicate acquisition is desirable in order to permit thorough exploitation. Additionally, for budgetary or other reasons, some equipment which has been collected has not been fully analyzed and exploited on a timely basis. Moreover, it appears that there is available some Soviet Bloc materiel which could be of use to the intelligence effort which has, in fact, not been collected. Consequently, a much greater community-wide effort should be directed toward: (1) acquisition of Soviet Bloc materiel and (2) full and timely intelligence exploitation. This will require community-wide coordination to ensure prompt evaluation by technically qualified personnel and timely dissemination of finished intelligence reports to the community and to the research and development activities responsible for U. S. offensive and defensive weapons systems. The Defense Intelligence Agency (DIA) and CIA should jointly review this matter and submit recommendations for United States Intelligence Board (USIB) consideration.

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8. The Analysis Task

National Security Council Intelligence Directive (NSCID) No. 3, para. 7.c., assigns responsibility for the production of scientific and technical intelligence to CIA as a service of common concern. The directive also states (para. 7.b.): "The Department of Defense shall produce military intelligence. This production shall include scientific, technical and economic intelligence directly pertinent to the missions of the various components of the Department of Defense." Although explicit definition of and delineation between these two responsibilities has not been stated and indeed perhaps is not susceptible to such statement, there is, in fact, relatively little unwarranted duplication or overlap of effort between the analysis activities of the military services and CIA. Among the military services themselves there is a natural division of effort, based upon their respective operational and research and development responsibilities within the Department of Defense. There are, however, certain problems in the scientific and technical intelligence field (of which the Soviet anti-ballistic missile program, the development of Soviet intercontinental ballistic missiles, the Soviet submarine program, and Soviet space activities are examples) which are of priority importance to the national security, and on which it is difficult to reach firm intelligence conclusions. Consequently all agencies are justified in devoting to these problems such resources and analytical efforts as are available. In these fields diversified approaches will increase the likelihood of reaching a sound understanding

of Soviet activities, capabilities and vulnerabilities. Under these circumstances, it is essential that there be a full exchange of information among the participating agencies, and that each be kept aware of the analytical efforts of the others in these fields. This is generally being done, both through liaison at the technical working level, and through the facilities of the Scientific Intelligence Committee, the Guided Missile and Astronautics Intelligence Committee and the Joint Atomic Energy Intelligence Committee.

Nevertheless, there is evidence that, aside from problems of overriding national concern, some duplication of effort exists between CIA and the military services, for which justification is not entirely clear. For example, CIA's Office of Scientific Intelligence includes an "Air and Naval Weapons Branch" engaged in analysis of Soviet air and naval weapons development, despite the more extensive and thorough coverage of these fields by Air Force and Navy.

CIA has made conscientious and largely successful efforts to eliminate unwarranted duplication of its effort with that of components of the Department of Defense; at this time, however, CIA should further re-examine its programs and activities in the light of changes now taking place in the intelligence community, and in consultation with DIA.

We are aware that duplication of effort may exist in certain technical fields between elements of the intelligence community in Washington on the one hand and intelligence organizations of certain military commands on the other. We note that the Department of Defense is currently examining the allocation of intelligence resources to the various military commands.

There is general agreement among the elements of the community engaged in the analysis of Soviet Bloc scientific and technical capabilities that there are basically two types of consumers of the product of their analyses: (a) policy and operating officials, and (b) research and development components. It is also recognized that, although the needs of these two consumers are different, they are not incompatible, but are in some respects complementary, in that work devoted to meeting either need assists in meeting the other. There is no doubt that intelligence, by furnishing knowledge and information on foreign scientific and technical capabilities, trends and developments, can significantly assist and expedite our own research and development effort, and that for this assistance to be most effective, the intelligence components concerned must be put into a close and harmonious relationship with research and development activities. Conversely, this relationship can be of great benefit to intelligence, through the availability and use of the scientific talent within the research and development community, in solving problems of intelligence analysis and collection.

The United States Intelligence Board believes that arrangements within the Department of Defense for scientific and technical intelligence should provide, under the staff supervision of the Defense Intelligence Agency, for the strengthening of organizations and programs designed to render intelligence support to and receive assistance from research and development components, and for the utilization of the resources and services of such organizations and programs in preparing contributions to intelligence estimates. Similarly, CIA should continue and strengthen

its program of support to research and development components of the government outside the Department of Defense, other than the Atomic Energy Commission. The Atomic Energy Commission should similarly continue and strengthen its program of intelligence support to its own research and development activity as well as its contribution to the intelligence community.

In drawing conclusions and making estimates as to Soviet activities and developments, intelligence analysts frequently base their reasoning, in whole or part, upon analogous U. S. experiences in the particular activity in question. While it is recognized that in some cases the paucity of information on a Soviet activity leaves no alternative except to rely largely upon analogous U. S. experience, this kind of reasoning can lead to false or misleading conclusions, and every effort should be made to avoid undue reliance upon it in drawing conclusions as to the nature of Soviet scientific or technical developments.

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10. Security and Personnel

In the course of this assessment of scientific and technical intelligence activities, the existence of complex security compartmentation of information was frequently cited as an impediment to collection, coordination and analysis efforts throughout the community. Joint Study Group Recommendation No. 14 also drew attention to this general problem and as a result the United States Intelligence Board has approved certain recommendations by its Security Committee to deal with this matter.

The problem of recruiting and retaining competent scientists in intelligence are shared by other government activities requiring scientific personnel. The resolution of the problems will require government-wide action. In the meanwhile, however, it is urged that each agency review its practices as related to scientific and technical personnel, to ensure that full advantage is taken of the provisions of existing law and civil service regulations respecting their pay and status.